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ABSTRACT

Preferences for asymmetry in the relationship between metaphorical topic and vehicle were investigated among 64 fifth- and seventh-grade boys and girls. Subjects viewed 12 metaphorically related pairs of pictures selected from the Metaphoric Triads Task (MTT) and were told to write a sentence that tells how one picture is like another. Slides of the two pictures in each MTT item were displayed simultaneously at the front of students' classrooms. One member of each pair was randomly designated as "A" and the other as "B." Children at each grade level were tested in two groups, and the left-right placement of the A and B pictures was counterbalanced across groups. After some responses were eliminated to produce balanced sets of responses consisting of clearly metaphorical sentences, the remaining responses were examined to determine whether each had a topic/vehicle structure or whether it was nondirectional. Nondirectional sentences, found to be proportionately high in number, were further inspected to identify which picture served as topic. With regard to directional responses, no consensus existed among subjects at either grade level as to what the direction should be. The divergence of these findings from results of a previous study of high school students is discussed. (RH)

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Children's Recognition of Asymmetry in Metaphor

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CHILDREN'S RECOGNITION OF ASYMMETRY IN METAPHOR

Metaphor involves thinking about one idea in terms of another. Consider a familiar example: "The road was a ribbon of moonlight." The central idea, or topic, is the road; the metaphor asserts an equation between the road and a second idea, "a ribbon of moonlight", called the vehicle. Although topic and vehicle are very different, they share an underlying similarity which provides the basis or ground of the equation; here that ground is a striking visual similarity. The metaphor draws our attention to this quality and gives us a clear, vivid view of the road in question. The equation asserted by the metaphor is far from perfect, however. The differences between topic and vehicle cannot be overlooked. Some have argued that it is the tension between these similarities and differences which gives a metaphor its power.

Before the recent surge of interest in figurative language, available evidence suggested that the cognitive skills required for metaphoric thinking only appear in later childhood or adolescence (Asch & Nerlove, 1960; Piaget, 1926; Richardson & Church, 1959). As interest in the problem grew, this view was challenged. Today there is clear evidence that young children can recognize metaphoric similarity (e.g., Gardner, 1974; Honeck, Sowry & Voegtle, 1978; Kogan, Connor, Gross & Fava, 1980), and comprehend and produce linguistic metaphors (e.g., Billow, 1975, 1980; Chukovsky, 1968; Gardner, Kircher, Winner & Perkins, 1975; Malgady, 1977; Pollio, Barlow, Fine & Pollio, 1977; Winner, 1979).

At the same time, it is also clear that the metaphoric competence of young children is not identical to that of adults. The content, complexity and purpose of children's own metaphoric productions change with age; comprehension and appreciation likewise grow more sophisticated. We must turn our attention, then, to describing and explaining these developmental changes.

The present research examines one dimension of metaphoric thinking which may provide a fruitful place to begin this investigation. That dimension is asymmetry. Asymmetry is a central theme in most theoretical accounts of metaphor (e.g., Black, 1962; Miller, 1979; Ortony, 1979). In claiming that metaphor is asymmetrical, we are claiming that the "equation" previously described is not an equation at all. Rather than functioning as equal and interchangeable partners, topic and vehicle in fact play very different roles in creating the metaphor. Black (1969) has offered a metaphor to describe these roles: He says that the metaphoric vehicle serves as a kind of filter, reorganizing our view of the topic.

That adults are sensitive to this asymmetrical quality has been demonstrated empirically. Connor and Kogan (1980a, 1980b) employed items from the Metaphoric Triads Task (MTT) (Kogan, 1980; Kogan et al., 1980) to study asymmetry. Each item in this task is comprised of three pictures, two of which are related metaphorically; that is, they share a conceptual, visual or expressive similarity despite the fact that the people, objects or events depicted are taken from very different domains. In the standard administration of this task, subjects are presented with all three pictures in each triad and are asked to make and explain pairings among them. In order to study asymmetries, Connor and Kogan presented the two metaphoricly related pictures in each item to high school students and asked them to write metaphors or similes based on the pairs. For example, one such pair was composed of a tired, stooped old man and a picture of an old, knarled tree. In another item, a picture of a young woman with long curly hair was presented along with a picture of a plant whose vines resembled the woman's hair.

We can view these pairs as providing the "raw materials" for the creation of a linguistic metaphor or simile. In order to compose a figurative sentence based on one of these pairs, subjects must impose a topic-vehicle structure on the concepts. When large numbers of subjects produce sentences in this way, these sentences can be examined to see if there is intersubject agreement in terms of the structure chosen, and if so, to determine what characterizes the choices. With the high school subjects tested by Connor & Kogan, high levels of agreement did indeed emerge for many of the items. Further, a hierarchical scheme initially proposed by Kogan (Fava & Kogan, 1977) described the observed patterns of preference rather well. Kogan had proposed that concepts could be hierarchically ordered in terms of degree of animacy. The hierarchy is composed of humans, animals, plants and objects, in that order. He further proposed that subjects would prefer to structure metaphoric comparisons such that the vehicle was drawn from a lower domain in the hierarchy than the topic to which it is compared. When both are drawn from the same level, preferences would be less clear. There was a relatively good fit between this scheme and the responses obtained from high school students. By late adolescence, subjects have not only recognized that metaphoric sentences require an asymmetrical structure, but they have also developed a shared preference for certain kinds of structures.

In the present study, we sought to determine whether these same patterns of preference characterized the metaphoric sentences of younger subjects. We thought it likely that this might not be the case; that growing sophistication in the use of metaphoric language might be reflected in changes in preferred topic-vehicle structure. In this case, two outcomes were possible: Younger

subjects might show clear preferences, but these preferences might differ from those of adults. Alternatively, sentences written by children might show little or no consensus, reflecting idiosyncratic preferences or little sensitivity to the asymmetry implied in a metaphor.

Method

Subjects

Subjects in this study were 64 fifth graders and 45 seventh graders from a parochial school in the Bronx. Mean ages for the two groups were 11-0 and 13-1, respectively. Each group was approximately half male and half female.

Stimulus Materials

Twelve metaphoricaly related pairs of pictures were selected from items in the MTT. Two additional items were selected as sample items. One member of each pair was randomly designated as "A" and the other as "B".

Procedure

Slides of the two pictures in each item were displayed simultaneously at the front of the classroom. Children at each grade level were tested in two groups; the left-right placement of the A and B pictures was counterbalanced across these groups.

Instructions used in prior studies were simplified for the present samples. Children were simply told to "...make up a sentence that tells me how one picture is like the other..." and to write it down. They were further told that their sentences might look something like this:

"_____ is like _____ because . . ."

They were also told they didn't have to use exactly these same words. Two sample items were presented, accompanied by appropriate sentences.

Scoring

Before the topic-vehicle structure of each response was identified, sentences which were clearly not based on a metaphoric ground were eliminated. The scoring system developed for the MTT (Kogan, et al., 1980) guided our decisions in this respect. Nonmetaphoric sentences constituted 8.2 percent of the fifth graders' responses and 7 percent of the 7th graders'. A chi-square test indicated that these proportions were not significantly different.

Sentences were also eliminated on an item-by-item basis to balance the number of responses in each of the two left-right subgroups for each grade level. Sentences eliminated for this reason constituted about 5 percent of the total number of responses.

The remaining responses were then examined to determine whether each had a topic-vehicle structure or whether it was nondirectional ("The man and the tree are both old."). For sentences that were directional, we determined whether picture A or picture B served as topic.

The raters independently scored 10 percent of the protocols. Levels of agreement for both metaphoricity and structure were 99 percent.

Results

Analysis of sentences for the 5th and 7th graders in the present study revealed two findings at odds with those for older groups: First, a high proportion of the sentences were nondirectional; that is, a topic-vehicle structure could not be identified. Second, for those responses which were directional, there was no consensus among subjects at either grade level as to what the direction should be. Data supporting the first finding is

displayed in Table 1. Table 1 presents the proportion of sentences judged nondirectional in the present study, as well as similar percentages from previous studies with older subjects (Connor & Kogan, 1980a, 1980b; Connor, 1981). About half the sentences produced by the children fell into the nondirectional category, while less than 10 percent of those produced by any of the older samples failed to reveal a topic-vehicle structure.

Table 2 displays the proportion of subjects choosing "A" as topic in the present sample; again comparable data from older subjects is also presented. (Note that older samples responded to more items than are reported here.) The binomial distribution, or its normal approximation, can be used to determine whether the proportion of subjects choosing A as topic for a given item differs significantly from chance (50 percent). Each of the proportions displayed in Table 2 was evaluated this way; asterisks indicate those proportions which were significant. There were no significant proportions in either grade school sample; in contrast, about two-thirds of these items were significantly asymmetrical in older samples.

In particular, 20 proportions are reported here for the older subjects which are based on comparisons between concepts at different levels in Kogan's concept hierarchy, and hence for which we would expect asymmetrical preferences. The level of agreement for these items only fell below 70 percent three times. For these same items, the level of agreement never exceeded 67 percent in the younger groups.

Further inspection of the data for the 5th and 7th grade students suggested that left-right order of stimulus presentation strongly influenced students' responses. In the four subgroups, over 70 percent of the directional metaphors employed the stimulus on the left as topic.

Finally, chi-square tests were employed to determine whether there were significant differences between 5th and 7th graders in topic-vehicle preferences. Only one item, the geese-soldier comparison, yielded a significant chi-square.

Discussion

The results clearly indicated that children in the upper elementary grades didn't show the high levels of consensus on topic-vehicle structure which characterized older subjects' responses. Large numbers of these children evaded the task altogether by composing sentences without a directional structure. When directional structures were employed, there was no consensus at either grade level as to which of the two possible structures to use. Indeed, it would appear that these children often relied on the left-right order of stimulus presentation to determine the structure of their sentences.

Our initial hunch that sensitivity to metaphoric asymmetry would be a fruitful dimension for documenting growing sophistication in the use of metaphoric language was clearly confirmed. The present study only provides a starting point for explaining these changes, however. Both empirical and theoretical issues remain to be resolved. Empirically, perhaps the most pressing need is to pinpoint more precisely the point at which consensus begins to emerge. We are currently examining this question in a study employing 5th, 9th and 11th grade students. The theoretical issues are more complex. What might account for the shift we have observed? Several possible explanations present themselves. First the observed differences might reflect changing sensitivity to the asymmetry implied in the basic simile sentence frame:

"_____ is like _____."

On the surface, the frame suggests equivalence of the concepts compared. Yet at the same time, recognition that one of the concepts may be better suited to play the role of the topic or of vehicle implies a difference as well.[1] As we have noted, the tension arising from similarity and difference has long been recognized as a key aspect of metaphor. Younger children may have difficulty integrating two concepts that are both similar and different at the same time. Instead, they may focus exclusively on the similarity and respond as if the relationship was one of equivalence.

Alternatively, the differences between grade school and high school students in our data may reflect differences in the way different age groups construe these pictorial stimuli. If children attend to different aspects of these stimuli, or elaborate them in different ways, then we would not expect these children to talk about the pictures in the same way that older individuals do.

Ortony (1979) has proposed a similar argument. He has suggested that metaphoric similarity results from an imbalance in the salience of ground relevant attributes in the topic and the vehicle, respectively. These critical attributes are relatively low in salience in the topic and relatively high in the vehicle. The function of the vehicle, then, is to draw our attention to these low-salient aspects of the topic. In contrast, literal similarity relations are those where the relevant attributes are highly salient in both terms. He further suggests that what is metaphorically similar for the adult may be literally similar for the young child: Relevant attributes are

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[1]Tversky (1977) has demonstrated that this apparent equivalence is misleading for literal comparisons as well.

differentially salient at different ages. Ortony proposed this analysis in relation to the metaphoric productions of very young children, whose thinking we would indeed expect to be rather different from that of adults. Yet it may well be that more subtle differences in the saliences of various aspects of MTT pictures are at the root of the differences in sentence structure reported here.

Finally, we could look at these differences from a functional perspective. What our subjects were in fact asked to do in the present study was to pick one of the two pictures as a focus, to select one that they wanted to comment upon. It may be the outcome of this selection process that changes with age. With age we may come to view humans as more interesting, more complex, more worthy of attention. Cicone, Gardner and Winner (1981) have noted that young children appear to have more difficulty with psychological metaphors than with sensory metaphors, perhaps reflecting a lower awareness of psychological dimensions. As awareness of these important dimensions of human experience grows, perhaps it becomes more natural to take human beings as the focus of interest.

All of these explanations are plausible; all are open to experimental investigation. By pursuing these investigations we will certainly enrich our understanding of metaphoric thinking and its place in the linguistic and cognitive development of the child.

REFERENCES

Asch, S.E. & Nerlove, H. The development of double function terms in children. In B. Kaplan & S. Wapner (Eds.), Perspectives in psychological theory. New York: International Universities Press, 1960.

Billow, R.M. A cognitive developmental study of metaphor comprehension. Developmental Psychology, 1975, 11, 415-423.

Billow, R.M. Observing spontaneous metaphor in children. Journal of Experimental Child Psychology, 1981, 31, 430-445.

Black, M. Models and metaphors. Ithaca, N.Y.: Cornell University Press, 1962.

Chukovsky, K. From two to five. Berkeley: University of California Press, 1968.

Cicone, M., Gardner, H. & Winner, E. Understanding the psychology in psychological metaphors. Journal of Child Language, 1981, 8, 213-216.

Connor, K. Unpublished data, 1981.

Connor, K. & Kogan, N. Topic-vehicle relations in metaphor: The issue of asymmetry. In R.P. Honeck & R.R. Hoffman (Eds.) Cognition and figurative language. Hillsdale, N.J.: Erlbaum, 1980 (a).

Connor, K. & Kogan, N. Asymmetry in visual and verbal metaphor. Paper presented at the 88th Annual Meeting of the American Psychological Association, Montreal, September, 1980 (b).

Fava, D. & Kogan, K. Dimensions of metaphoric sensitivity. Paper presented at 85th Annual Meeting of the American Psychological Association, San Francisco, August, 1977.

Gardner, H. Metaphors and modalities: How children project polar adjectives onto diverse domains. Child Development, 1974, 45, 84-91.

Gardner, H., Kircher,M., Winner, E., & Perkins, D. Children's metaphoric productions and preferences. Journal of Child Language, 1975, 2, 125-141.

Honeck, R.P., Sowry, B.M., & Voegtle, K. Proverbial understanding in a pictorial context. Child Development, 1978, 49, 327-337.

Kogan, N. A cognitive style approach to metaphoric thinking. In R.E. Snow, P-A Federico, & W.E. Montague (Eds.), Aptitude, learning and instruction: Cognitive process analyses. Hillsdale, N.J.: Erlbaum, 1980.

Kogan, N., Connor, K., Gross, A. & Fava, D. Understanding visual metaphor: Developmental and individual differences. Monographs of the Society for Research in Child Development, 1980, serial no. 183.

Malgady, R.G. Children's interpretation and appreciation of similes. Child Development, 1977, 48, 1734-1738.

Miller, G.A. Images and models, similes and metaphors. In A. Ortony (Ed.), Metaphor and thought. Cambridge: Cambridge University Press, 1979.

Ortony, A. Beyond literal similarity. Psychological Review, 1979, 86, 161-180.

Piaget, J. The language and thought of the child. New York: Harcourt, Brace, 1926.

Pollio, H.R., Barlow, J.M., Fine, H.J., & Pollio, M.R. Psychology and the poetics of growth. Hillsdale, N.J.: Erlbaum, 1977.

Richardson, C. & Church, J. A developmental analysis of proverb interpretation. Journal of Genetic Psychology, 1949, 94, 169-179.

Winner, E. New names for old things: The emergence of metaphoric language. Journal of Child Language, 1979, 6, 469-491.

Table 1

Nondirectional Sentences
with Metaphoric Grounds

Sample	% Nondirectional Metaphors	Total No. Metaphoric Sentences
Present Study		
5th Grade	55.2	706
7th Grade	49.6	502
Previous Studies		
11th Grade[a]	3.0	1,117
12th Grade[b]	8.9	1,060
College Freshman[c]	5.0	800

[a] Connor & Kogan, 1980 (b).
[b] Connor & Kogan, 1980 (a).
[c] Connor, 1981.

Table 1

Preferences for Metaphor Direction

Item		Present Study				Comparable Data from Previous Studies					
		5th Grade		7th Grade		11th Grade[a]		12th Grade[b]		College Freshmen[c]	
A	B	% of Ss choosing A as topic	n	% of Ss choosing A as topic	n	% of Ss choosing A as topic	n	% of Ss choosing A as topic	n	% of Ss choosing A as topic	n
1. ballerina	spinning top	61.5	52	63.9	36	77.8***	36	64.3*	56	87.5**	24
2. snowman	sandcastle	66.7	18	50.0	24	58.3	24	55.8	52	50.0	16
3. tall woman	sunflower	46.7	30	64.3	28	85.7**	14	77.1**	48	55.5	20
4. boxer	bull	60.7	28	45.8	24	92.3***	26	----	--	81.8*	22
5. old man	old tree	54.2	24	52.2	23	99.2***	34	79.5***	44	70.8	24
6. geese	soldiers	68.2	22	29.4	17	41.7	36	----	--	54.5	22
7. plane crashing	fish on hook	66.7	18	38.5	13	53.3	30	54.6	56	78.6	14
8. angry man	explosion	66.7	18	55.0	20	79.4***	34	94.7***	38	80.0*	20
9. droopy plant	tired runner	44.4	18	45.0	20	17.6***	34	39.7	58	13.6***	22
10. old man	candle	50.0	14	50.0	16	73.7**	38	----	--	81.8*	22
11. woman's jewels	city at night	65.0	20	60.0	15	----	--	74.1***	54	----	--
12. fly in web	fish in net	62.5	16	46.7	15	66.7	24	----	--	38.9	18

***$p < .001$, 2-tailed; **$p < .01$, 2-tailed; *$p < .05$, 2-tailed

[a] Connor & Kogan, 1980(b).

[b] Connor & Kogan, 1980(a).

[c] Connor, 1981.